**Department of
Technology Services**

Mainframe
Application Hosting
Service

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Mainframe Application Hosting

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Explanation of the Service Offering

Statement of Service

Broadly available software applications are a vital component of many businesses. Ensuring that these applications are hosted in a reliable, secure, and technologically up-to-date environment is, for many organizations, difficult, expensive, and a drain on technical support staff. The Department of Technology Services (DTS) offers extensive, secure processing, monitors computing availability and performance, and provides backup and recovery capabilities.

The DTS provides software application hosting on mainframe computers running the OS/390 (soon to be z/OS) operating system (OS). Our mainframe computers are located in our secure, environmentally controlled raised floor computer room. The DTS provides full power system redundancy and a fire suppression system.

Service Offering Highlights

The DTS Mainframe Application Hosting includes the following:

- Hardware procurement, installation, and maintenance for mainframes.
- Software procurement, installation, and maintenance for mainframes (operating system, system utilities, database, and web software).
- Performance monitoring.
- Network connectivity.
- Environmentally-controlled secure facility.
- Reliable power with full uninterruptible power supply (UPS) and generator backup.
- Halon fire suppression system.
- System backup and recovery.
- Security systems including virus protection, data encryption, and intrusion detection.

System Response Time

Both the customer and the DTS monitor the health of the system. Various factors determine the user's wait-time when executing a command from their keyboard/mouse. These factors include: the configuration of individual customer networks, the speed of the desktop processor, the amount of available RAM on a desktop, and the type of software package executed. These factors can vary from one desktop to the next so system response times will also vary. Additional

functionality and configuration of customer LANs can also impact system response time.

The DTS maintains service level objectives for system response time. In addition, the DTS works with the customer to resolve response time issues as appropriate.

System Monitoring

Operational considerations to be included in the DTS system monitoring are: a daily check of the backup logs to insure system backups have executed properly, and ongoing monitoring of system availability and system performance. If any problems or issues are discovered, the DTS contacts the customer to coordinate the implementation of a problem solution.

Operations Support and Command Center

The DTS Service Desk and Command Center is staffed 24 hours per day, seven days a week. The Command Center provides system monitoring and availability support for the mainframe environment and manages tape handling for the system and customer backups. The DTS provides customer feedback according to the Severity Code Definitions outlined in Appendix B.

Data Backup

The DTS performs the necessary system backups for the mainframe environment in order to guarantee both the integrity of the customer's data, as well as the DTS's ability to recover that data as needed (see Operational Recovery below). The DTS retains 31 days of full system backups.

Mainframe backups prior to any system or application maintenance procedure may be requested.

Restore Request Process

File and disk restoration from tape backup is reserved for disk failure and disaster recovery purposes only. Requests for restores outside of disk failure and disaster recovery purposes should be submitted to storage@dts.ca.gov.

Operational Recovery

The DTS responds to system failures immediately. The DTS maintains a 24-hour 1st level help desk that alerts key system support staff of any unplanned outage to ensure timely resolution.

Disaster Recovery

For an additional cost, Disaster Recovery plans will be developed with each customer on a case by case basis.

Security

The DTS takes all necessary precautions to protect mainframe computers from unauthorized access including modification, deletion, or disclosure of the databases and operating systems.

The DTS and the customer are responsible for ensuring the protection of confidential data stored and transmitted. Additionally, the DTS performs logging and tracking of security events should they occur.

The customer agrees to exercise reasonable efforts to safeguard the following information:

- Specific version information of the systems' firmware, operating system, and applications in order to minimize the potential exploitation of vulnerabilities prior to release and application of service packs/fixes.
- Account names/passwords.
- IP addresses/system names.

The DTS and the customer are responsible for notifying the appropriate security representative (usually the Information security Officer) of any suspected unauthorized access.

The DTS and the customer are responsible for maintaining hardware and software at vendor supported levels. Customers are responsible for maintaining application software at the supported levels of the system software. If customers delay in updating application software, additional support costs will be incurred.

The State of California and the DTS 's customers require that the DTS maintain Information Technology (IT) security that protects the entire data center and all of its customers from unauthorized intrusions. Mainframe Application Hosting customers are expected to observe the various IT security-related best practices, standards, and policies in force within the DTS including the security guidelines outlined by the International Standards Organization section 17999.

Customers not in compliance with the DTS 's security guidelines subject the DTS and its other customers to unnecessary security risks and consequences. The DTS may take remedial action or discontinue services to Application Hosting customers that disregard the security guidelines. Specific IT security-related guidelines for Application Hosting customers are contained within the Operations and Systems Security section below.

All Application Hosting customer service requests and project changes must include a review and approval by the customer's Information Security Officer (ISO) and the DTS 's ISO.

Operations and Systems Security

Mainframe Application Hosting customers are responsible for the following IT security areas:

- Maintain up-to-date application and patch upgrades. All application and patch upgrades are tested on a comparable test environment.
- Work in conjunction with DTS Security Staff using an intrusion detection system (IDS) and perform testing as deemed necessary (host IDS or file integrity checking)
- Work in conjunction with DTS Security Staff providing pre-production and subsequent security vulnerability scanning and analysis of hosted applications.
- Adhere to current DTS security guidelines regarding foreign connections into the DTS trusted network. (These practices include, but are not limited to, remote administration, Telnet, and FTP.)

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Roles and Responsibilities

Setting up and supporting a reliable and secure software application-hosting environment can be a daunting task. The DTS's experience with other mainframe customers affords us with the expertise to help customers deploy their application solutions.

The DTS's technical support staff sets up and configures the mainframe to integrate efficiently with each customer's network configuration and user population size. The DTS continually analyzes the hosting infrastructure to ensure operational integrity and the ability to grow as needed.

DTS Responsibilities

Provide Performance Analysis
- Track resource utilization
- Provide maintenance of monitoring and data gathering tools
- Notify the customer of storage capacity and/or performance issues the DTS discovers

Provide Server OS Support
- Perform installation and maintenance of Operating System (OS) and related utilities.
- Troubleshoot mainframe hardware and OS.
- Backup and restore the OS.

Provide System Database Support
- Perform installation and maintenance of database software.
- Develop and maintain database to all OS interfaces.
- Provide general system troubleshooting.
- Provide application data restoration and recovery.

Provide Enterprise Storage Support
- Provide installation and maintenance of storage subsystem.
- Provide installation and maintenance of enterprise storage backup solutions.
- Provide storage system troubleshooting.

Provide Network Connectivity
- Establish connectivity from the mainframe to an existing DTS /customer network.
- Establish isolated connectivity and firewall protection (purchased separately as part of DTS's network access service offering).

Customer Responsibilities

The following are the functional areas that the customer must provide:

Provide Customer System Administration
- Act as the primary contact for the customer when contact by DTS support staff is needed.
- Participate in development/maintenance of OS to OS interfaces.
- Provide user administration.

Provide Application Database Support
- Act as the primary contact for the customer when contact by DTS support staff is needed.
- Provide database development and support.

Provide Application Support
- Provide development and maintenance of the application.
- Provide development and maintenance of the application to all OS interfaces.

Joint Responsibilities (DTS and customer)

- Provide monitoring and notification on system availability, performance, storage limitations when the mainframe is nearing capacity, and other technical issues.
- Provide application data restoration/recovery (Joint responsibility).

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Pricing

<u>Basic Service Offering Pricing</u>

Current rates are available for viewing on the DTS web site located at
www.hhsdc.ca.gov/rates.asp.

<u>Options</u>

The list below displays the software, languages, packages, etc. that are provided:

   <u>Network Software:</u>
     ACF/NCP
     SSP
     NETWORK PERF. MONITOR
     NETWORK TERM. OPTION
     NCCF
     NPDA
     ACF/VTAM with MSNF
     NLDM
     IND$FILE

   <u>Programming Languages:</u>
     COBOL for OS/390 and VM
     VS COBOL II Compiler
     VS COBOL II Subroutines
     C/C++
     XPEDITER/TSO COBOL debugging tool
     VS FORTRAN Compiler
      and Libraries
      and Interactive Debug
     PL1 OPTIMIZING COMP.,LIB. AND INTERACTIVE TEST
     LE for OS/390 and VM
     NATURAL
      Super NATURAL
     ADS/O
     RAMIS
      MARVEL
      RPI
      ADABAS Interface

TSO Support Packages:
- BookManager/Read
- FileAid/XE
- Graphical Data Display Manager (GDDM)
- Interactive System Productivity Facility
    - ISPF Dialog Manager
- IOF
- PAN TSO
- Panvalet/SPF Option
- PDSMAN
- PLI CHECKOUT COMPILER
- PL/I LANG. CONSTRUCTION PREPROCESSOR
- PMF (Print Manag. Facility)
- PSAF (Print Serv. Acc. Fac.)
- Screen Definition Facility II
- TSO DATA UTILITIES
- VS APL
- VS COBOL II COBTEST
- VS FORTRAN INTERACTIVE DEBUG
- VTAM Printer Support system (VPS)
- XPEDITER/TSO (COBOL debugging tool)

CICS Support Packages:
- CICS/TS
- ABEND AID
- INTERTEST
- XPEDITER
- ASSIST/GT
- PCP
- OMEGAMON II CICS
- OMEGAVIEW
- SUPEROPTIMIZER
- VPS
- VMCF
- VPSPRINT
- RPT/BROWSE
- DRS
- TPX
- CONNECT:DIRECT
- DYNAPRINT
- HIPERSTATION
- SHOW & TELL
- SPY

Mathematical and Statistical Packages:
    IMSL
    SAS
        (Access/ADABAS & DB2, AF, ASSIST, Base,
         CALC, CONNECT, DMI, ETS,
         FSP, GRAPH, IML, QC, SHARE, STAT)

Data Base/Data Management Support:

    DB2 for OS/390
        CA-PAN/SQL
        !DB/Explain(!Candle)
        DpropR Capture and Apply for MVS
        File-AID For DB2 (w/xpediter ext.)
        File-AID/RDX For DB2
        Insight/DB2
        KBMS/DB2
        NATURAL DB2
        Omegamon II for DB2
          PLATINUM Product Suite
            PLATINUM Compile/PRF
            PLATINUM Database Analyzer
            PLATINUM Fast Unload
            PLATINUM Execution Facility
            PLATINUM Governor Facility
            PLATINUM Plan Analyzer
            PLATINUM RC/Compare
            PLATINUM RC/Migrator
            PLATINUM RC/Query
            PLATINUM RC/Secure
            PLATINUM RC/Update
            PLATINUM Recovery Analyzer
            PLATINUM Report Facility
            PLATINUM SQL-Ease
        QMF/MVS
        QuickStart
        Knowledge Xpert for DB2(RevealNet)
        RLX/SQL
        RLX/CLIST
        RLX/Compile
        RLX/ISPF
        RLX/NET
        RLX/TSO
        RLX/Compile
        SAS ACCESS/DB2
        Smart/RESTART

Smart/RRS
STROBE For DB2
Sybase DirectConnect NT
Sybase MainframeConnect OS/390
Sybase Open ServerConnect OS/390
Thread/SENTRY
Thread/STOPPER
VisualAge Host Services

ADABAS
AOS
APAS
NATIVE SQL
ENTIRE
    ENTIREX BROKER
    NETWORK MAINFRAME
NATURAL Product Line
    CON-NECT
    CON-NECT SNADS LINK
        CON-FORM
        CONSTRUCT
NATURAL
NATURAL Advanced Facilities
NATURAL Connection
NATURAL DB2
NATURAL Security
NATURAL VSAM
PREDICT (Data Dictionary)
PREDICT Application Control
STROBE For Adabas/Natural
Super NATURAL

IDMS
ADS/O (see Programming Languages)
IDMS Tools
DBSTATS
DBOL
FAST/ACCESS

Misc:
FOCUS
RAMIS (see Programming Languages)

Report Preparation Packages:
EASYTRIEVE PLUS

     EASYTRIEVE UTILITIES
  NATURAL (see languages)
  PANAUDIT PLUS
    PANAUDIT
  RAMIS (see languages)
  RESULTS (DYL280 II)
  TPL/PCL

Other Support Packages:
    ABENDAID
    ADRS II
    BEST/1
    CAPTURE/MVS
    Comparex
    Compuware ECC (Shared Services)
    DCD III
    Deliver (formerly Express Delivery)
    DMS/OS see Sams:DISK
    Document Composition Facility (SCRIPT)
    Execution Scheduling Processor (ESP)
      Encore (restart/rerun)
    FASTDASD
    FATS/FATR
    FDR/DSF
    FileAid/XE
    HFDL (Xerox Host Forms Defn Lang)
    HourGlass 2000
    IAM
    Interactive Instructional Presentation System
    IrmaLink
    JCLFLOW
    JobScan
    KOMPACTOR
    LSTCAT (listcat plus)
    MICS
    MIM (Multi-Image Manager)
    OGL/370 (IBM Overlay Gen Lang)
    OMEGAMON/MVS
    PANVALET
    PDSMAN
    PKZIP   (compression package)
    PPFA/370 (Page Prt Format Aid)
    PSF (Advanced Function Printing)
    Quickref
    OS/390 Security Server (RACF)
    RESOLVE

RMF
RPLUS (UCCR+)
Sams:DISK (formerly DMS/OS)
Sams:COMPRESS (formerly SHRINK)
SMP/E
SSANAME3
STROBE
SYNCSORT
TMS (CA-1) Tape Management System
TSA
TSO-MON
View (formerly SAR)
   Extended Retention Option
   CICS interface
   SAR/PC for DOS
   View Workstation
Vanguard RACF Administrator (VRA)
Vanguard RACF Security Reporter VSR)
VTOC Conversion Aid
WebSphere Application Server

Cost Estimates

Cost estimates are developed for the customer as requested.